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TEST REPORT

For

Sound Transmission Loss Test

ASTM E 90 – 04 / E 413 - 04
On

Travertine Stone Tile and Mortar over
Anti-Fracture Underlayment
on 8 Inch (203 mm) Concrete Slab with Suspended Gypsum Board Ceiling System

Report Number: NGC 5008095

Assignment Number: G-479

Test Date: 12/04/2008

Report Date: 01/08/2009

Submitted by: _____
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Report Number: NGC 5008095

Test Method: This test method conforms explicitly with the American Society for Testing and Materials Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements - Designation: E 90 - 04 / E 413 - 04.

Specimen Description: 8 inch (203mm) Concrete Slab Overlaid with; travertine tile over anti-fracture/sound control underlayment, over a suspended gypsum board ceiling with insulation.

The test specimen was a floor-ceiling assembly consisting of the following:

- 1 layer of 12.1mm (0.476 in.) Travertine stone tile. Tile size was 457mm x 457mm (18 in. x 18 in.). Sample weight was 28.1 kg/m^2 (5.76 PSF).
- 1 layer of medium bed, latex modified mortar. Sample was trowled on with a 6.3 x 6.3mm x 9.5mm (1/4 in. x 1/4 in. x 3/8 in.) square notch trowel. Grout and mortar weight was nominally 5.27 kg/m^2 (1.08 PSF).
- Euclid Chemical Company Eucolastic 1 Sealant containing one-part polyurethane. Sealant was used to seal the underlayment joints.
- 1 layer of 1.0mm (0.041 in.) anti-fracture/sound control underlayment. Sample weight was found to be 1.4 kg/m^2 (0.28 PSF).
- 203mm (8 in.) thick reinforced concrete slab 488.2 kg/m^2 (100.0 PSF).
- 158mm (6-1/4 in.) fiberglass unfaced batt insulation. Sample weight was 1.32 kg/m^2 (0.27 PSF). The insulation was laid over the suspended grid system parallel with the Main tees.
- Gypsum board ceiling grid suspension system manufactured by Armstrong®. System is comprised of Main Tees (part number HD8906E) and Cross Tees (part number XL8945P). The Main Tees were placed 1218mm (48 in.) on center and the Cross Tees were placed 609mm (24 in.) on center. 16 gauge galvanized tie wire was used to attach the Main Tees to concrete anchors, located 1219mm (48 in.) o.c. along the longitudinal axis, suspending the grid 305mm (12 in.) below the concrete slab.
- 1 layer of 15.9mm (5/8 in.) Type X gypsum board. Sample was observed to be 15.7mm (0.632 in.) thick and weighed 11.2 kg/m^2 (2.3 PSF). The board was attached 304.8mm (12 in.) o.c. perpendicular to suspended grid suspension system mains, using 25.4mm (1 in.) fine thread bugle head drywall screws. The board joints were taped.

The overall weight of the test assembly is nominal 536.1 kg/m^2 (109.82 PSF).

The perimeter of the concrete slab was sealed with rubber gasketing and a sand filled trough. The test assembly is structurally isolated from the receiving room.

Specimen size: 3658mm x 4877mm (12 ft x 16 ft.)

Conditioning: Concrete slab cured for a minimum of 28 days. Mortar and grout cured for 7 days.

Test Results: The results of the tests are given on pages 3 and 4.

Sound Transmission Loss Test Data

Test: ASTM E 90 - 04 / ASTM E 413 - 04

No. of test report: NGC5008095 Date: 12/4/2008
Size: 17.84 m²

Source room
Volume V = 53.2 m³
Temperature [°C]: 16.7
Humidity [%]: 40

Receiving room
Volume V = 60.0 m³
Temperature [°C]: 18.7
Humidity [%]: 61

Sound Transmission Class STC = 67 dB

Sum of unfavorable deviations: 29.0 dB
Max. unfavorable deviation: 8.0 dB at 250 Hz

Frequency [Hz]	STL [dB]	L1 [dB]	L2 [dB]	T [s]	Corr. [dB]	u.Dev. [dB]	ΔSTL
100	48	103.1	61.0	2.23	6.1	-.-	2.760
125	52	101.0	55.9	2.71	7.0	-.-	0.825
160	53	102.7	57.4	3.32	7.9	1	1.926
200	52	100.9	56.4	3.30	7.8	5	0.927
250	52	101.8	57.8	3.30	7.8	8	0.600
315	57	105.3	56.1	3.09	7.6	6	0.663
400	60	104.1	51.7	3.14	7.6	6	0.678
500	65	102.7	44.9	2.90	7.3	2	0.557
630	67	102.3	41.9	2.69	6.9	1	0.316
800	70	101.6	38.6	2.73	7.0	-.-	0.346
1000	74	99.6	32.6	2.60	6.8	-.-	0.520
1250	75	98.6	30.2	2.32	6.3	-.-	0.361
1600	78	100.0	28.3	2.21	6.1	-.-	0.387
2000	78	99.6	27.4	1.93	5.5	-.-	0.283
2500	78	101.0	27.7	1.75	5.1	-.-	0.200
3150	80	101.0	25.4	1.66	4.8	-.-	0.265
4000	81	100.0	23.2	1.46	4.3	-.-	0.346
5000	80.0	99.8	23.6	1.30	3.8	-.-	0.510

STL = Sound Transmission Loss, dB
L1 = Source Room Level, dB
L2 = Receiving Room Level, dB
T = Reverberation Time, seconds
Δ STL = Uncertainty for 95% Confidence Level

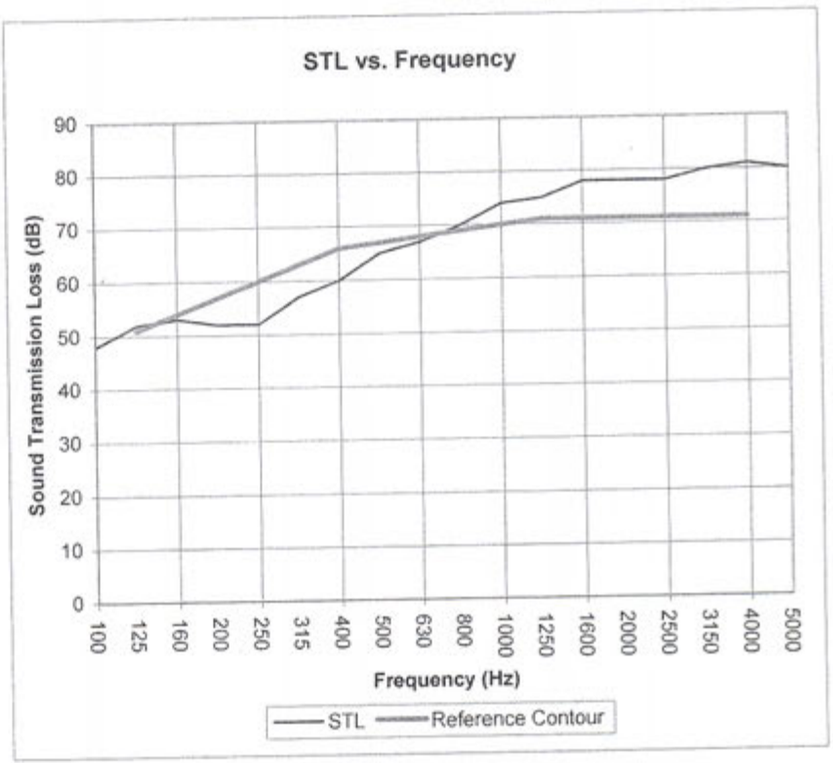
Sound Transmission Loss Test Data

Per: ASTM E 90 - 04 / ASTM E 413 - 04

No. of test report: NGC5008095
Test Date: 12/4/2008
Size: 17.84 m²

Sound Transmission Class STC = 67 dB

Frequency [Hz]	STL [dB]	ΔSTL	
100	48	2.760	
125	52	0.825	
160	53	1.926	
200	52	0.927	
250	52	0.600	
315	57	0.663	
400	60	0.678	
500	65	0.557	
630	67	0.316	*
800	70	0.346	
1000	74	0.520	
1250	75	0.361	
1600	78	0.387	
2000	78	0.283	
2500	78	0.200	
3150	80	0.265	
4000	81	0.346	
5000	80	0.510	



* Due to high insulating value of specimen, background levels limit results at these frequencies.

STL = Sound Transmission Loss, dB
Δ STL = Uncertainty for 95% Confidence Level

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